Indicator	
4	Demand for road travel at the coast.

Measurement	
4.1	Volume of traffic on coastal motorways and major roads.

What should the measurement tell us?

Perhaps the largest consequence of development at the coast is an increase in the demand for road travel, which leads to pressure on existing road space and in turn to the provision of new infrastructure. Road traffic expands to fill the space allocated to it and hence over time congestion, air pollution, noise and the costs associated with maintaining the road network will all rise exponentially. The measurement should alert us to the pace at which the demand for road travel is rising and also tell us whether the issue is greater on coastal motorways and major roads than on those inland.

The opposite, of course, holds true. Sluggish traffic growth is an indicator of a *lack* of development!

Parameters

(i)	Average number of vehicles per day on motorways and major roads (or the most important alternative roads) within coastal NUTS 3.
(ii)	Average number of vehicles per day on motorways and major roads (or the most important alternative roads) within coastal NUTS 3 by distance from the coastline.

Coverage

Spatial	Temporal
Motorways and major roads (or the most important alternative roads) within coastal NUTS 3.	Every five years from 2000 but earlier if possible [1].

Data sources

All countries monitor traffic flows by counting the number of vehicles passing a measuring station. There is no definitive rule but motorways tend to be administered by national highways agencies (or central government ministries of transport) whereas major roads are the responsibility of regional authorities. Datasets are available, often sub-divided into daily or weekend averages or by type of vehicle. Seasonal data is particularly instructive for coastal planning because of its association with tourism and holidaymaking. *Many of the computations necessary to calculate the parameters will have been done already* – in particular, check with your regional (or provincial) authority.

Motorways are broad highways designed for high-speed traffic, whereas 'Major' roads are the next tier down and are principal roads of national or regional importance. However, remember that we want to measure the impact of traffic at the coast. Consequently, in coastal areas where there are no motorways or national roads, you should use data for the most important alternative road.

Methodology	
Steps	**Products**
1 In GIS (or other cartographic tools) sample the co-ordinates of monitoring stations located in coastal NUTS 3 and select those which measure traffic flows on motorways and major roads.	List of all monitoring stations located in coastal NUTS 3 and which measure traffic flows on motorways and major roads.
2 Measure the distance from the coastline of each monitoring station identified in step 1.	Distance from the coastline of all monitoring stations identified in step 1.
3 Obtain 'annual average daily flow' datasets for all vehicles for every monitoring station identified in step 1.	Average number of vehicles per day on motorways and major roads by distance from the coastline (graph 1).
4 Add the average number of vehicles per day passing *all* monitoring stations on *each* motorway and major road identified in step 1 and divide by the number of monitoring stations.	Average number of vehicles per day on *each* motorway and major road within coastal NUTS 3 (map 1).
5 Add the average number of vehicles per day on all motorways and major roads and divide by the number of routes.	Average number of vehicles per day on *all* motorways and major roads within coastal NUTS 3 (graph 2).
Presentation of the data	
Map 1	Map of coastal NUTS 3 showing average daily traffic flows for all motorway and major roads. The *width* of each route depicted should approximate to the *volume* of traffic between each monitoring station.
Graph 1	Scatter graph illustrating the relationship between average daily traffic flow and distance of monitoring station from the coastline.
Graph 2	Bar chart showing the average number of vehicles per day on all motorways and major roads in the wider reference region since at least 2000 and earlier if possible.

Adding value to the data
<u>Seasonal flows</u> The impact of tourism and holidaymaking on the volume of traffic can be illustrated effectively by juxtaposing maps of the average number of vehicles per day on the same coastal motorway or major road in summer and winter. <u>Type of traffic</u> The demand for travel at the coast can be classified by type of vehicle. Information about type of vehicle is especially significant (i) in and around ports and routes leading to them; (ii) in areas where local, tourist and through traffic is intermixed and road management schemes based on segregating traffic are being considered.
Aggregation and disaggregation
Aggregating data is possible up to the regional level but above that the resolution necessary to identify a 'coastal effect' is lost.

Notes

[1] Data from the pre-2000 period will help to identify long-term trends in vehicle numbers overall as well as the relative importance of individual routes.